

Jennifer A. Ufnar, Ph.D.

Executive Director, Center for Science Outreach
Research Assistant Professor, Department of Teaching and Learning
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AREAS OF SPECIALIZATION

STEM outreach, science education, teacher education, collaborative apprenticeship models of professional development, cognitive apprenticeship models, phenomenon-based learning

EDUCATION

- 2006 Ph.D., Biology, Emphasis: Microbiology, University of Southern Mississippi, Hattiesburg, MS
- 1999 M.A.T., 36 Hours completed in graduate education coursework at the University of Iowa toward an M.A.T. in Science Education
- 1994 B.S., Geology, 1994, Vanderbilt University, Nashville, TN

PROFESSIONAL EXPERIENCE

- 7/2018 – Present
 - Research Assistant Professor**
Department of Teaching and Learning, Vanderbilt University, Nashville, TN
 - Executive Director**
Collaborative for STEM Education and Outreach, Vanderbilt University, Nashville, TN
 - Coordinator and University Mentor, Noyce Program**
Department of Teaching and Learning, Vanderbilt University, Nashville, TN
 - Instructor, Aspire Program**
Biomedical Education Research Training, Vanderbilt University, Nashville, TN
 - Professional Development Facilitator**
Metro Nashville Public Schools, Nashville, TN
 - STEM Educational Consultant**
A. Fantis Parochial School, Brooklyn, NY
- 10/16 – 6/2018
 - Senior Research Associate; Program Director: Scientist in the Classroom (SCP), Interdisciplinary Science and Research (ISR), and Day of Discovery (DoD) Programs**
Department of Teaching and Learning, Vanderbilt University, Nashville, TN
 - Coordinator and University Mentor, Noyce Program**
Department of Teaching and Learning, Vanderbilt University, Nashville, TN
 - ISR Teacher**
Overton High School, Metro Nashville Public Schools, Nashville, TN
 - Instructor, Aspire Program**
Biomedical Education Research Training, Vanderbilt University, Nashville, TN
 - Professional Development Facilitator**
Metro Nashville Public Schools, Nashville, TN
- 8/14 – 9/16
 - Program Manager; SCP Program Director**
Department of Teaching and Learning, Vanderbilt University, Nashville, TN

Co-Project Coordinator/Curriculum Lead

Vanderbilt Abu Dhabi STEM Initiative, Vanderbilt University, Nashville, TN

Instructor, Aspire Program

Biomedical Education Research Training, Vanderbilt University, Nashville, TN

Professional Development Facilitator

Metro Nashville Public Schools, Nashville, TN

1/12 – 8/14

Assistant Professor

Division of Science and Technology, Southern Vermont College, Bennington, VT

9/07 – 12/11

Associate Director

Vanderbilt Center for Science Outreach, Vanderbilt University, Nashville, TN

6/08 – 12/11

Research Assistant Professor

Department of Biological Sciences, Vanderbilt University, Nashville, TN

1/10 – 5/10

Adjunct Instructor

Department of Math and Sciences, Nashville State Community College, Nashville, TN

1/07 – 10/07

Postdoctoral Fellow

University of Southern Mississippi, Hattiesburg, MS

1/07 – 08/07

Instructor

Department of Biological Sciences, University of Southern Mississippi, Hattiesburg, MS

1/04 - 12/06

Graduate Research Assistant

Department of Biological Sciences, University of Southern Mississippi, Hattiesburg, MS

8/02 – 12/03

Outreach Coordinator

Office of Science Outreach, Vanderbilt University, Nashville, TN

6/01 – 8/03

Summer Outreach Program Coordinator and Instructor

Vanderbilt University Girls and Science Camp

7/01 – 8/02

High School and Middle School Science Teacher

Riverside Military Academy, Gainesville, GA

8/98 – 6/01

Laboratory Research Assistant

University of Iowa, Iowa City IA

HONORS & AFFILIATIONS

Honors

- Outstanding Ph.D. Candidate Award, College of Science and Technology, Univ. of Southern Mississippi – 5/06
- First in the Nation in Education (FINE) Scholar – University of Iowa, 2000
- Vanderbilt University Outstanding Geology Student – 5/94

Affiliations

- Computer Science Teachers Association (CSTA)
- National Science Teachers Association (NSTA)
- Tennessee Science Teachers Association (TSTA)
- American Society for Microbiology (ASM)

- Geological Society of America (GSA)

PUBLICATIONS

Articles in Refereed Journals

Ufnar, J.A. and Shepherd, V.L. The Sustained Scientist in the Classroom Partnership Program. *Journal of STEM Outreach*, *Submitted*.

Ufnar, J.A., Bolger, M., and Shepherd, V.L. The long-term impacts of classroom partnerships on scientists-in-training: A longitudinal study of the impact on teaching fellow participants in a sustained GK12 program. *Submitted*.

Ufnar, J.A., Lee, C., and Shepherd, V.L. 2018. The Vanderbilt Scientist in the Classroom Partnership: A novel Collaborative Apprenticeship model for situated professional development. *Journal of STEM Outreach*, 1(2):78-92.

Ufnar, J.A. and Shepherd, V.L. 2018. The Scientist in the Classroom Partnership program: An innovative teacher professional development model. *Professional Development in Education*: 45(4):642-658.

Ufnar, J.A. and Shepherd, V.L. 2018. Interdisciplinary Science and Research: A novel interdisciplinary STEM program. *Journal of STEM Outreach*, 1:JU1-JU8.

Ufnar, JA, Bolger, M., and Shepherd, VL. 2017. A retrospective study of a Scientist in the Classroom Partnership program. *Journal of Higher Education Outreach and Engagement*, 21(3):69-96.

Johnston C, Byappanahalli MN, Gibson JM, **Ufnar JA**, Whitman RL, Stewart JR. 2013. Probabilistic analysis showing that a combination of *Bacteroides* and *Methanobrevibacter* source tracking markers is effective for identifying waters contaminated by human fecal pollution. *Environ Sci Technol*. 47(23):13621-8

Ufnar, J.A., Shepherd, V.S., and Kuner, S. 2012. Moving Beyond GK12. *CBE Life Sciences Education*; 11(3):239-47.

Flood, C., **Ufnar, J.**, Wang, S., Johnson, J., Carr, M., and Ellender, R. 2011. Lack of correlation between enterococcal counts and the presence of human specific fecal markers in Mississippi creek and coastal waters. *Water Res*, 45(2):872-8.

Flood, C., **Ufnar, J.**, Wang, S.Y., Qualls, C., Johnson, J., and Ellender, R.D. 2011. Lack of correlation between enterococcal counts and human-specific markers in Mississippi creek and coastal waters. *Water Res*. 45(2): 872-878.

Johnston, C., **Ufnar, J.A.**, Griffith, J.F., Gooch, J.A., and Stewart, J.R. 2010. A real-time qPCR assay for the detection of the *nifH* gene of *Methanobrevibacter smithii*, a potential indicator of sewage pollution, *J Appl Microbiol*, 109(6):1946-56.

Ufnar, J.A., Ufnar, D.F., Wang, S.Y., and Ellender, R.D. 2007. Development of a methanogen marker for detection of porcine fecal pollution in surface waters, *Appl. Envir. Microbiol*. 73:5209-5217.

Ufnar, J.A., Wang, S.Y., Ufnar, D.F., and Ellender, R.D. 2007. *Methanobrevibacter ruminantium* as an indicator of domestic ruminant fecal pollution in surface waters, *Appl. Envir. Microbiol*. 73(21):7118-7121.

McCombs, G., **Ufnar, J.A.**, and Shepherd, V.L. 2007. The virtual scientist: Connecting university scientists to the K-12 classroom through videoconferencing. *Amer. J. Physiol*. 31:62-66.

Ufnar, J.A., Wang, S., Christiansen, J.M., Yampara-Iquise, H., Carson, C.A., and Ellender, R.D. 2006. Detection of the *nifH* gene of *Methanobrevibacter smithii*: a potential tool to identify sewage pollution in recreational waters. *J. Appl. Microbiol.* 101:44-52.

Ufnar, D.F., **Ufnar, J.A.**, Rebarchik, D., and Ellender, R.D. 2006. Influence of coastal processes on high fecal coliform counts in Mississippi beach waters, *Journal of Coastal Research*, 22(6):1515-1526.

Ufnar, D.F., **Ufnar, J.A.**, White, T.W., Rebarchik, D., and Ellender, R.D. 2005. Meteorological influences on fecal coliform pollution in the Mississippi Sound, *Transactions, Gulf Coast Association of Geological Societies*, 55:835-843.

Ferguson, J.S., Voelker, D.R., **Ufnar, J.A.**, Dawson, A.J., and Schlesinger, L.S. 2002. Surfactant protein D inhibition of human macrophage uptake of *Mycobacterium tuberculosis* is independent of bacterial agglutination, *J. Immunol.*, 168:1309-1314.

Conference proceedings

Bolger, M., **Ufnar, J.A.**, Crouch, R., Willis, J., Kuner, S., Robinson, D., Shepherd, V.L. 2012. Exploring different types of science teaching and learning. NARST.

Kuner, S., Crouch, R., Willis, J., Bolger, M., Robinson, D., **Ufnar, J.A.**, and Shepherd, V.L. 2012. Do scientists belong in K12 classrooms? *AERA Proceedings*.

Shepherd, V., **Ufnar, J.**, and Varma, K. 2004. The impact of a science camp for girls: Initial explorations. *AERA Proceedings*.

Invited Presentations:

Ufnar, J. (2019). Outreach to K-12. Presentation, Gordon Research Seminar: Cellular and Molecular Mechanisms of Toxicity.

EXTERNAL FUNDING

Current Support

US024-0000100517 (J. Ufnar, co-PI) 2/7/20 – 6/30/22
Evaluation of TN STEM Designation \$299,929
Battelle (subcontract)

2-218740-26, Annex 89 (J. Ufnar, PI) 7/1/19 – 6/20/24
Interdisciplinary Science & Research Program \$1,110,000
Metropolitan Nashville Public Schools (contract)

2-218740-26, Annex 90 (J. Ufnar, PI) 7/1/19 – 6/20/24
School for Science and Math at Vanderbilt \$1,325,000
Metropolitan Nashville Public Schools (contract)

2-218740-26, Annex 88 (J. Ufnar, PI) 7/1/19 – 6/20/24
Resident Scientist Program \$2,115,000
Metropolitan Nashville Public Schools (contract)

NSF DUE 1852875 (H, Johnson, PI) 6/15/19 – 5/31/24
The Recruitment and Preparation of Next Generation STEM Teachers
\$1,109,376

2-218740-26, Annex 89 (J. Ufnar, PI) Scientist in the Classroom Partnership Metropolitan Nashville Public Schools (contract)	6/1/19 – 6/20/24 \$1,195,000
NIH R25OD021883-01 (J. Ufnar, PI) Day of Discovery: A STEM Pipeline Program for Middle School Students	7/1/16 – 6/30/21 \$1,279,194
NSF DUE 1439866 (H. Johnson, PI) Mobilizing STEM Talent for STEM teaching in the Nashville Public Schools	1/1/15 – 6/30/20 \$1,184,043

Prior Support

Predators Foundation (J. Ufnar, Co-PI) Telepresence Robots as In-Classroom Scientists	5/1/18 – 2/28/19 \$7,800
NIH R25OD01119 (J. Ufnar, Co-PI) Transforming STEM Learning in Urban Schools Using the SSMV Model National Institutes of Health	7/12/11 – 6/30/16 \$1,313,316
VUMC37081-R (J. Ufnar, Co-PI) Metropolitan Nashville Public Schools (contract) School for Science and Math at Stratford	10/01/2010 – 06/30/2011
MS.R.760 (J. Ufnar, PI) State of Mississippi Coastal Impact Assistance Program	01/27/2010 – 01/31/2012 \$150,000
VUMC37081-R (J. Ufnar, PI) Metropolitan Nashville Public Schools (contract) School for Science and Math at Hillsboro	10/01/2010 – 06/30/2011
5 RC1 RR028361-02 (J. Ufnar, Co-PI) NIH/NCRR Evaluation of the Impact of a Sustained Scientist-in-the-Classroom Program	9/30/2009 – 9/29/2011 \$320,545
1 R25 RR032182-01 (J. Ufnar, Co-PI) NIH/NCRR Transforming STEM Learning in Urban Schools Using the SSMV Model	07/01/2011 – 06/30/2016 \$250,000
MNPS Contract (J. Ufnar) MNPS Resident Scientist Program Metropolitan Nashville Public Schools	7/1/14 – 6/30/15 \$287,522
Contract 2-218740-19, Annex 55 (J. Ufnar) Metropolitan Nashville Public Schools	6/1/2015 – 5/31/19 \$204,849

TEACHING

Vanderbilt University

- SCED 3900: Special Topics in Science Education: Scientist in the Classroom
- University mentor for secondary science education practicum students (Noyce)

Southern Vermont College; University of Southern Mississippi; Nashville State Community College

- Chemistry I&II
- Organic Chemistry I&II
- Anatomy and Physiology I&II
- Environmental Studies
- Genetics
- Microbiology
- Environmental Microbiology
- Biology I
- Nutrition
- Freshman Seminar

K-12:

- High school chemistry and Interdisciplinary Science and Research, Overton and Lead High Schools, Nashville, TN
- High school chemistry and 7th grade science, Riverside Military Academy, Gainesville, GA

Licensure

- Elementary K-6 (Florida and Tennessee)
- Biology 6-12 (Florida and Tennessee)

Postdoctoral Mentor

Shanieek Lawrence
Lauren Tetz
Alexia Carrillo
Marci Howdyshell
Loren Lapointe
Clayton Coffman
Letimicia Fears
Gennifer Goode
Carla Thompson
Desmond Campbell
Jennifer Gentry
Daniel Michel
Matthew Wilkins
Alissa Anderson
Bryson Reynolds
Menton Deweese
Nathan Haag
Zachary Conley
Ann Ouyang
Gregory Smith
Taneisha Gillyard

SERVICE

Professional

Reviewer

- *Journal of STEM Outreach*
- *Environmental Pollution*
- *F1000 Research*
- *Microbial Ecology*
- *African Journal of Biotechnology*
- *Current Microbiology*
- *Environmental Science and Technology*
- *Journal of Higher Education Outreach and Engagement*
- *Professional Development in Education*

Grant Reviewer

- National Institutes of Health, Science Education Partnership Award – 2018, 2019
- National Institutes of Health, National Cancer Institute, Youth Enjoy Science Award - 2019

Committees

- Vanderbilt Ingram Cancer Center, Outreach Committee Member, 2018 – Present
- TSTA STEM Leadership Cadre Member, 2017-Present
- NIH SciEd Conference Organizing Committee Member, 2017-Present
- NASA NAS Outreach Evaluation Committee – Invited 2019

Journal Editorship:

Associate Editor and co-founder, *Journal of STEM Outreach*, 2018-present

Advisory Boards

- Co-founding member, Computer Science Teachers Association (CSTA) for the state of Tennessee
- Advisory Board, Tennessee Science Teachers Association
- Project Lead the Way, Launch Advisory Committee Member, 2018 – Present
- Co-Chair; MNPS STEAM Advisory Council, 2017-Present
- Chair, MNPS STEAM Advisory Council Evaluation Subcommittee, 2017-Present
- Zoo Education Advisory Committee Member, 2017-Present
- Advisory Board Chair, Hillsboro High School, Global Health and Science Academy, 2015-Present
- Advisory Board Member, Stratford and MLK Magnet High Schools, 2015-Present
- Advisory Board Member, The Tutorial Center, Bennington, VT, 2013-present

University

- Committee Member, Chemical Safety Committee
- Executive Director, Collaborative for STEM Education and Outreach
- Interim Executive Director, Center for Science Outreach
- Instructor, Aspire Program, Biomedical Education Research Training Office
- Guest Speaker, Aspire Program, Biomedical Education Research Training Office

- Vanderbilt Environmental Advisory Committee, 2008-2011
- Co-Chair, Retention Committee, Southern Vermont College, 2012-2014
- Committee Member, Case Management Committee, Southern Vermont College 2012-2014
- Committee Member, Diversity Council, Southern Vermont College, 2012-2014

College:

- Professional development for teacher workshops hosted by Programs for Talented Youth – 2015 – Present
- Space planning group – Peabody College

Department

- Center for Science Outreach Strategic Planning Committee, Department of Teaching and Learning, Chair
- Postdoctoral Committee Member, Department of Teaching and Learning
- Secondary Education Capstone Presentations evaluator – 2014 – Present
- Preservice teacher Screening I – Science – 2014 – Present
- Preservice teacher Screening II – Science – 2014 – Present
- Elementary Education Licensure Program Capstone evaluator – 2015
- Provides assistance in finding practicum and student teaching placements for preservice science teachers – 2014 – Present
- Co-wrote the Job Embedded Science Licensure Proposal – 2015

Community

- Academies of Nashville Partnership Council
- Curriculum advisor – Science of Teaching and Learning Pathway, Stratford High School
- Invention Convention Presenter – 2019, 2020
- Invited professional development for elementary STEAM schools – Inglewood and Glencliff – 2018
- Developed and implemented STEM camps for elementary students, Center for Science Outreach, 2018 – Present
- Invited panelist for NCAC visits – 2017 – Present
- Invited professional development for MNPS – 2015 – Present
- Guest advisor for Science Olympiad – Rosebank Elementary and Rose Park Middle
- Developed partnership between Rose Park Middle School and Microsoft Corporation